

CLAIMS

1. A method for inhibiting the ability of a biomaterial to sorb cationic antimicrobials comprising treating the surface of said biomaterial with a cationic polysaccharide.
2. The method of claim 1 further comprising treating the surface of said biomaterial to provide a net anionic charge on said surface before contacting said surface with said cationic polysaccharide.
3. The method of claim 1 wherein the surface of said biomaterial carries a net anionic surface charge and wherein the method includes no intermediate treatment step to modify the surface charge before binding said polysaccharide to the surface of said biomaterial.
4. The method of claim 2 wherein said surface treating step further comprises contacting said surface with a linking agent.
5. The method of claim 1 wherein said binding step further comprises retaining said cationic polysaccharide on the surface of said biomaterial through at least one selected from the group consisting of ionic interactions, hydrogen-bonded interactions, hydrophobic interactions and covalent interactions.
6. The method of claim 5 wherein said ionic interactions are between oppositely charged ionic groups between the biomaterial and an aqueous solution containing the cationic polysaccharide.
7. The method of claim 6 wherein the negative charge on the biomaterial is derived from at least one selected from the group consisting of carboxylate groups, sulfonate groups, phosphate groups, phosphonate groups, sulfate groups, and phosphinate groups.
8. The method of claim 6 wherein the cationic charge on the cationic polysaccharide is derived from ammonium groups, quaternary ammonium groups, sulfonium groups, phosphonium groups, and other positively charged functional groups.
9. The method of claim 5 wherein said hydrogen-bonding interactions occur between hydrogen-bond accepting surfaces and hydrogen-bond donating solutions, or through hydrogen-bond donating surfaces and hydrogen-bond accepting surfaces.

10. The method of claim 9 wherein said hydrogen-bond accepting groups are selected from the group consisting of pyrrolidone groups, N,N-disubstituted acrylamide groups and polyether groups.
11. The method of claim 10 wherein said polyether groups are poly(ethylene glycol) or poly(ethylene oxide).
12. The method of claim 9 wherein said hydrogen-donating groups are selected from the group consisting of carboxylic acids, sulfonic acids, sulfuric acids, phosphoric acids, phosphonic acids and phenolic groups.
13. The method of claim 5 wherein said hydrophobic interactions occur through hydrophobic sites on the biomaterial surface interacting with hydrophobic groups on the cationic polysaccharide.
14. The method of claim 5 wherein said covalent interactions exist between the biomaterial surface and the water-soluble cationic polysaccharide such that the cationic polysaccharide is bound to the biomaterial surface.
15. The method of claim 1 wherein said biomaterial is an ophthalmic lens.
16. The method of claim 15 wherein said ophthalmic lens is a contact lens.
17. The method of claim 1 wherein said biomaterial is a silicone hydrogel material.
18. The method of claim 17 wherein said contact lens is an extended-wear contact lens suitable for periods of continuous wear for about 7 to about 30 days.
19. The method of claim 1 wherein the cationic polysaccharide is selected from the group consisting of cationic starch, cationic dextran, cationic chitosan, cationic locust bean gum, cationic gum tragacanth, cationic curdlan, cationic pullulan and cationic scleroglucan.
20. A solution for cleaning and/or disinfecting contact lenses comprising from 0.1 to 20 ppm of a biguanide antimicrobial; from 0.05 to 2.5 weight percent of a buffer selected from the group consisting of borate, phosphate, citrate, bicarbonate, tromethamine and mixtures thereof; from 0.001 to about 15 weight percent of a surfactant; one or more tonicity adjusting agents in concentration sufficient to provide solution osmolality of from about 200 to about 400 mOsm/kg; and from about 0.01 to about 10 weight percent of a cationic polysaccharide.

21. The solution of claim 20 further comprising from about 0.2 to about 10 ppm of a biguanide antimicrobial; 0.1 to 1.5 weight percent of a buffer; 0.1 to 5 weight percent of a surfactant; one or more tonicity adjusting agents in concentration sufficient to provide solution osmolality of from about 250 to about 350 mOsm/kg; and from about 0.02 to about 5 weight percent of a cationic polysaccharide.
22. The solution of claim 21 comprising from about 0.3 to about 2 ppm of a biguanide antimicrobial; 0.15 to 1 weight percent of a buffer; from 0.4 to about 2 weight percent of a surfactant; one or more tonicity adjusting agents in concentration sufficient to provide solution osmolality of about 280 to about 320 mOsm/kg; and from about 0.05 to about 1 weight percent of a cationic polysaccharide.